



## CRS Report for Congress

# Avian Flu Pandemic: Potential Impact of Trade Disruptions

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## Summary

Concerns about potential disruptions in U.S. trade flows due to a global health or security crisis are not new. The possibility of an avian flu pandemic with consequences for global trade is a concern that has received attention recently, although some experts believe there is little cause for alarm. Experts disagree on the likelihood of an avian flu pandemic developing at all. This report considers possible trade disruptions, including possible impacts on trade between the United States and countries and regions that have reported avian influenza infections. These trade disruptions could include countries banning imported goods from infected regions at the onset of a pandemic, de facto bans due to protective health measures, or supply-side constraints caused by health crises in exporting countries.

## Background

This report examines scenarios in which international trade could be heavily controlled or limited due to an avian flu pandemic.<sup>1</sup> Each of the scenarios presented depicts the possibility that imports of goods into the United States could be curtailed due to the avian flu. Some experts argue that these scenarios are not likely to occur, because they believe that the United States would probably not implement a general ban on the importation of goods from affected regions. It is believed that such a ban would not prevent transmission of the avian flu to the United States, because there is little evidence that inanimate objects could transmit the disease. Furthermore, opponents to a general ban on imports argue that such actions could unnecessarily cause economic and social hardship. The United States depends on global trade for necessities such as food, energy, and medical supplies. Also, some observers point out that the nature of the “just-in-time” global economy is such that the United States does not stockpile these and other

<sup>1</sup> For more information on the avian flu, see CRS Report RL33219, *U.S. and International Responses to the Global Spread of Avian Flu: Issues for Congress*, by Tiaji Salaam-Blyther; and CRS Report RL33145, *Pandemic Influenza: Domestic Preparedness Efforts*, by Sarah A. Lister.

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necessities. Finally, the World Health Organization does not recommend quarantining any individual country or closing international borders at any phase of an avian influenza pandemic.<sup>2</sup> If international borders are not closed to human passage, then it follows that there will probably not be direct trade restrictions.

While some experts believe that a general ban on imports either globally or from affected regions is highly unlikely, others contend that the strategy cannot be totally ruled out, particularly since there is already a U.S. ban on imports of poultry products from certain H5N1 (highly pathogenic strain of avian influenza)-affected countries and regions.<sup>3</sup> Some experts argue that it may be possible to transmit the virus through any object that has had contact with infected feces, blood, or other bodily fluids. Some policy analysts predict that if the H5N1 virus were to become a pandemic with human-to-human transmission, then the United States might control the movement of people across its borders to slow the virus' arrival on U.S. soil. This could involve limiting airline passenger flights into the country, but it could also mean limiting entry of cargo ships due to a fear of transmission from ship operators or stowaway birds. These types of restrictions may result in a de facto import ban. Some experts believe these restrictions are unnecessary and potentially harmful, but they might nevertheless be implemented to give the appearance of strong preventative actions, in response to public concerns or political factors. Many believe that if such restrictive measures were adopted, they would likely be short-lived. Once the pandemic reached the United States, such measures would appear to serve little further purpose and could be abandoned.

Another possible and perhaps more likely scenario is that a supply-side constraint in the exporting country would limit U.S. imports. Pandemic-affected countries could curtail their exports, either voluntarily or involuntarily. Governments may nationalize assets and stop export operations. An outbreak may also constrain production and key export infrastructure through excessive worker absences, to the point where exporting becomes difficult and is involuntarily slowed or halted. Such a slowdown in commerce could cause price increases or temporary shortages in certain goods within the United States, depending on the duration and breadth of the slowdown.

Several studies have been undertaken to estimate the effects of a pandemic on the U.S. and global economy. According to one study, a mild pandemic could reduce global economic output by \$330 billion, or 0.8% of global gross domestic product (GDP). The same study estimates that a pandemic of the worst case scenario severity could reduce global economic output by \$4.4 trillion, or 12.6% of global GDP.<sup>4</sup> The Congressional Budget Office (CBO) estimates that a severe influenza pandemic might cause a decline in U.S. GDP of about 4.25%, and that a milder pandemic might cause a decline of about

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<sup>2</sup> *Influenza Pandemic Risk Assessment and Preparedness in Africa*, World Health Organization Regional Office for Africa, Brazzaville. 2005.

<sup>3</sup> See CRS Report RL33795, *Avian Influenza in Poultry and Wild Birds*, by Jim Monke and M. Lynne Corn.

<sup>4</sup> Warwick J. McKibben, cited in John Reichard, "Models Show Pandemic Could Be Devastating, But Flight Curbs Could Buy Valuable Time," *CQ Healthbeat News*, October 19, 2006.

1%.<sup>5</sup> Other studies have found both greater and lesser economic effects, depending on the methodology and data used. Different studies also disagree on the extent to which international trade would be disrupted by an avian flu pandemic.

## Potential Impact of Trade Disruptions with Avian Flu-Affected Countries and Regions

This section considers the potential economic and trade effects on the United States of import disruptions from countries affected by avian flu, either as a result of border closings in the United States or supply side constraints in the exporting country or region. Only countries with human avian flu cases confirmed by the World Health Organization (WHO) from January 2004 to January 2008 are considered, because these countries are arguably more likely to experience trade disruptions due to avian flu. The relative likelihood of import disruptions from one country or region over another is not considered, because it is too difficult to ascertain.

**Table 1. U.S. Trade with Avian Flu-Affected Countries**

Country	Number of Confirmed Human Cases, 2003-1/2/2008	Share of total cases in 2007	2006 U.S. Imports, millions U.S. \$	2006 U.S. Exports, millions U.S. \$	Rank - Value of 2006 U.S. Imports
Azerbaijan	8	0%	716.14	231.08	80
Cambodia	7	14%	2,188.79	74.50	63
China	27	19%	287,772.79	55,224.16	2
Egypt	43	58%	2,393.38	4,103.78	60
Indonesia	116	35%	13,403.93	3,078.13	27
Iraq	3	0%	11,570.79	1,493.81	29
Thailand	25	0%	22,471.52	8,152.47	17
Turkey	12	0%	5,363.77	5,729.59	44
Vietnam	101	8%	8,566.33	1,100.21	34
<b>Total</b>	<b>348<sup>a</sup></b>	<b>24%</b>	<b>294,151.14</b>	<b>62,323.67</b>	

a. Total number of cases does not add up to 348 because countries with their first confirmed human cases in 2007 are omitted. These countries include Djibouti, Laos, Myanmar, Nigeria, and Pakistan. Each of these countries had one confirmed human case of H5N1 avian flu in 2007 except Laos, which had two.

**Source:** Data compiled from World Health Organization, see [[http://www.who.int/csr/disease/avian\\_influenza/country/cases\\_table\\_2008\\_01\\_02/en/index.html](http://www.who.int/csr/disease/avian_influenza/country/cases_table_2008_01_02/en/index.html)], and World Trade Atlas. All trade data in this report is from the World Trade Atlas unless otherwise noted.

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<sup>5</sup> “A Potential Influenza Pandemic: An Update on Possible Macroeconomic Effects and Policy Issues,” Congressional Budget Office. Revised July 27, 2006.

**China.** As seen in **Table 1**, the United States imports far more from China than any other country that has thus far reported confirmed human cases of the avian flu. In fact, China is the second-largest source of U.S. imports overall, accounting for over 15% of total U.S. imports in 2006.<sup>6</sup> Therefore, if imports from China were disrupted on a large scale over a long time period, it could have a significant effect on the U.S. economy. However, a short-lived disruption in imports from China may not cause an immediate crisis. Forty-four percent of U.S. imports from China are in the category of machinery or electronic machinery, and include items such as computers, televisions, and parts. A disruption in imports of these items could have implications for the domestic electronics market, but it may have a less severe effect on the U.S. economy as a whole.

One import category of special concern is medical supplies; the United States imported over \$4 billion in optical and medical instruments from China in 2006, representing 9.5% of such U.S. imports. Many, but not all, products in this category are considered essential medical equipment. For example, China was the second-largest supplier (after Mexico) of respirator equipment to the United States, supplying over 12% of U.S. respirator equipment. China has also been an important supplier of bandages (32% of U.S. imports in 2005), boxed first aid kits (20%), clinical thermometers (9%), orthopedic appliances (10%), and syringes (13%).<sup>7</sup> Some analysts contend that U.S. hospitals must begin to adjust their inventory procedures to take a possible avian flu pandemic into account, especially considering that medical supplies are sourced from potential avian flu hot spots. Many of these essential medical supplies are reportedly not manufactured in the United States.<sup>8</sup>

Almost 12% (about \$1 billion) of fish and seafood imports into the United States are from China, second only to Canada (\$1.8 billion). China exported nearly \$1 billion in oil to the United States in 2005, but it was ranked 31<sup>st</sup> and supplied less than 1% of total U.S. oil imports. It is not clear whether a trade disruption with China alone would have a great impact on the U.S. food supply, since the United States also imports food from other countries and regions, in addition to having domestic production. The loss of oil imports from China would probably have little or no significant effect.

Although the United States imports a great deal from China, many of these products originate elsewhere, and only their final stage of production takes place in China. For some items, production could possibly be shifted to another location if a long-term trade disruption were to occur. However, shifting production in the global supply chain may have great costs or not be feasible for other reasons.

**Thailand, Indonesia, and Vietnam.** Thailand, Indonesia, and Vietnam have similar patterns of exports to the United States, although in different volumes. Among countries with confirmed human avian flu cases, Thailand is the second largest supplier of U.S. imports. However, Thailand's total 2006 exports to the United States were just

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<sup>6</sup> World Trade Atlas.

<sup>7</sup> Ibid.

<sup>8</sup> *VHA Inc. Survey on Avian Flu Shows Some Hospitals Would Exhaust Supplies in Two Weeks*, VHA Press Release, March 16, 2006. [[https://www.vha.com/portal/server.pt/gateway/PTARGS\\_0\\_2\\_2043\\_271\\_0\\_43/http%3B/remote.vha.com/public/news/releases/060316.asp](https://www.vha.com/portal/server.pt/gateway/PTARGS_0_2_2043_271_0_43/http%3B/remote.vha.com/public/news/releases/060316.asp)]

over \$22 million, and it ranked 17<sup>th</sup> out of all exporters to the United States, with 1.2% of the U.S. import market. Indonesia and Vietnam were ranked 27<sup>th</sup> and 34<sup>th</sup>, respectively, with \$13 million and \$8.5 million in 2006 U.S. imports. Like China, Thailand's main exports to the United States are electrical machinery and machinery, comprising about 44% of Thailand's exports to the United States. Thailand, Indonesia, and Vietnam all export large quantities of fish to the United States. Thailand is the largest exporter of prepared crustaceans and mollusks (the second largest is China), and the second largest exporter of fresh crustaceans to the United States (after Canada). Indonesia and Vietnam are the fourth and fifth largest suppliers of prepared crustaceans, and the third and fourth largest suppliers of fresh crustaceans to the United States. Thailand and Indonesia also export optical and medical instruments to the United States, ranking 22<sup>nd</sup> and 25<sup>th</sup>, respectively, in 2006 U.S. imports. The United States imports medical supplies such as dialysis instruments, diagnostic instruments, syringes, needles, and ultrasound devices from Thailand and Indonesia.

In analyzing the trade data, it appears that if trade were disrupted between the United States and any one of Thailand, Indonesia, or Vietnam, the effects would probably be minimal. However, if U.S. trade was disrupted with all three countries and China, the U.S. supply of seafood and medical supplies could be impaired. Reduced seafood imports could increase not only the price of seafood, but it could cause increased demand and possible price increases in substitute goods. The impact of reduced medical supply imports could be more severe, possibly resulting in a shortage of certain medical supplies, since substitutes are generally not readily available.

**Iraq.** Oil comprised 96.5% (\$11.2 billion) of U.S. imports from Iraq in 2006, representing 3% of U.S. oil imports. Iraq is the eighth-largest oil exporter to the United States. If oil imports from Iraq were to stop, the reduced supply of oil could cause domestic energy prices to increase. However, there are many factors determining domestic energy prices, and other events could overshadow, exacerbate, or offset any disruption of trade with Iraq due to an avian flu pandemic.

**Other Avian Flu-Affected Countries.** Egypt, Turkey, and Azerbaijan all primarily export oil to the United States, though not in significant amounts relative to total U.S. oil imports. In 2006, Egypt, Azerbaijan, and Turkey ranked 34<sup>th</sup>, 39<sup>th</sup>, and 50<sup>th</sup>, respectively, in exports of oil to the United States. Turkey's main export to the United States was iron and steel in 2006, with 3% of the U.S. import market for iron and steel. Cambodia's and Azerbaijan's overall exports to the United States are relatively small and would likely have little impact on the U.S. economy if they were to be disrupted.

**Poultry Trade.** The United States is the largest global producer and exporter of poultry, and the second-largest global producer and exporter of eggs. In 2003, U.S. farm sales of poultry were \$23.3 billion, while U.S. imports of poultry were only \$42 million. In 2006 the U.S. exported \$2.24 billion in poultry, down from \$2.49 billion in 2005. Poultry exports to China have increased exponentially, from \$15.7 million in 2004 to \$309.3 million in 2006. China is the 3<sup>rd</sup> largest importer of U.S. poultry, after Russia and Mexico. The majority of U.S. poultry and egg imports are from Canada, which has not

been affected by the highly pathenogenic avian influenza, H5N1.<sup>9</sup> Some observers argue that as long as the United States remains unaffected by avian influenza the U.S. poultry industry may be positively affected by outbreaks of avian influenza elsewhere, as it may increase demand for U.S. poultry exports. On the other hand, news about avian influenza cases in other countries could reduce consumer demand for all poultry, even if it is considered influenza-free.

## Potential Impact of Global Trade Restrictions

If the United States were to shut its borders to trade completely, the impact could range from moderate to severe, depending on how long the restrictions were in place. A very short-term trade shutdown of just a few days may not have significant long term effects. As an example, in the days following September 11<sup>th</sup>, 2001, shipments to the United States were slowed dramatically (though not stopped entirely) because of tightened security at the borders. Once the borders were effectively reopened business resumed with little if any economic impact from the slowdown in trade. A longer trade shutdown could have greater implications, both domestically and globally. Much would also depend on how Wall Street reacted. A sharp fall in financial markets would be likely, but the question is how resilient the U.S. economy would be. Many countries rely on the United States as an export market. The loss of that market even temporarily could cause economic hardships around the world and contribute to the beginning of a possible global economic slowdown.

The United States is a large economy and does not rely on trade to the same extent as smaller economies, but it is not self-sufficient. There could possibly be an oil shortage, and energy prices could increase. Oil might not be available to all who need it. This would have implications for the rest of the economy, as transportation costs increase and cause price increases for goods across the economy. Also, many U.S. businesses rely on imports, both for intermediate goods and consumer products. It is difficult to determine which individual products could be in short supply, because many consumer goods that are generally not considered imported products depend on imports at some stage of their production. Also, some consumer goods that are imported have substitutes that may be produced in the United States.

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<sup>9</sup> For more information on potential effects on the U.S. agricultural economy, see CRS Report RL33795, *Avian Influenza in Poultry and Wild Birds*, by Jim Monke and M. Lynne Corn.